

CLAIMS

1. A mold for a medical device balloon, the mold having a cavity adapted to receive a hollow parison expandable therein to form the balloon, the cavity having a length, a first end, a second end, and a cavity wall with inner and outer surfaces, wherein the mold
5 form cavity wall is provided with at least one through-hole along at least a portion of the length thereof to facilitate entrance and egress of a heated fluid.
2. The mold of claim 1 wherein the through-hole is formed as a slot.
- 10 3. The mold of claim 1 having a plurality of said through-holes.
4. The mold of claim 3 wherein the through-holes are formed as longitudinally oriented slots.
- 15 5. The mold of claim 4 wherein the slots are arranged in a plurality of circumferentially spaced columns.
6. The mold of claim 5 wherein the slots of circumferentially alternating columns of slots are staggered longitudinally.
- 20 7. The mold of claim 5 comprising at least three of said circumferentially spaced columns of slots.
8. The mold of claim 7 comprising four of said circumferentially spaced columns of
25 slots.
9. The mold of claim 1 wherein the at least one through-hole has a dimension at the mold cavity wall inner surface which does not allow substantial penetration of the parison material therethrough when heated to the temperature of the heated fluid and
30 pressurized at a pressure sufficient to expand the parison to contact the mold cavity wall.
10. The mold of claim 1 wherein the at least one through-hole has a circular, diamond or square shape at the cavity wall inner surface.

11. The mold of claim 1 having a plurality of said through-holes arranged according to a pattern which extends circumferentially around the cavity wall.
- 5 12. The mold of claim 1 having a plurality of said through-holes arranged according to a pattern which extends helically around the cavity wall.
13. The mold of claim 1 wherein the cavity has a portion having a diameter of at least 5 mm.
- 10 14. The mold of claim 13 wherein said diameter is from about 8 mm to about 50 mm.
15. The mold of claim 13 having a plurality of said through-holes formed as slots having a minor dimension from about 0.1 mm to about 1.5 mm, and a major dimension
- 15 of at least about 0.2 mm.
16. The mold of claim 13 having a plurality of said through-holes in the form of substantially circular holes having a diameter of from 0.1 mm to about 1.5 mm.
- 20 17. A method of forming a medical device comprising the steps of
placing a parison in a mold having a cavity with a wall form substantially
conforming to the desired shape of said device,
immersing the mold in a heated fluid to heat the parison, and
pressurizing the parison to radially expand the parison to contact the walls of the
- 25 mold cavity,
wherein the mold cavity wall contains at least one through-hole therein through which the heated fluid enters the mold cavity to directly contact the parison when the mold is immersed in the heated fluid and through which heated fluid that has entered the mold cavity is expelled therefrom when the parison is radially expanded.
- 30 18. A method as in claim 17, further comprising agitating the heated fluid while the mold is immersed therein.

19. A method as in claim 17 further comprising vibrating the molding apparatus while the mold is immersed in the heated fluid.
20. A method as in claim 17 wherein the mold cavity wall contains a plurality of said
5 through-holes therein.
21. A method of blowing a balloon by immersing a mold containing a hollow parison of thermoplastic polymer material into a heated fluid and pressurizing the parison, the invention characterized in that, while the mold is immersed in the heated fluid, the
10 heated fluid is agitated and/or the mold form is vibrated.